Graphics Verification December Results

Measures Used

2 x 2 Contingency Table

Observations \ Forecasts	Yes	No	
Yes	A	B	C = A +B
No	D	E	F = D + E
	G = A + D	H = B + E	I = C + F

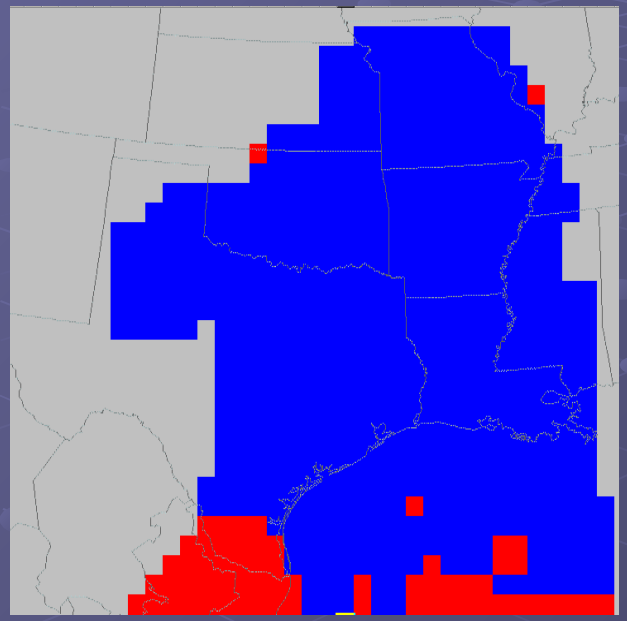
- **Chi-Square** – used to test for statistical significance. Answers the question, “Do we have a large enough sample to know our results are conclusive?”.
- **Heidke Skill Score** – used to test whether we are beating persistence or climatology.
- **Bias** – used to determine whether we are over-forecasting or under-forecasting.

HWD Results

Period: 01-31 Dec 02

HWD 12 Hr Forecast

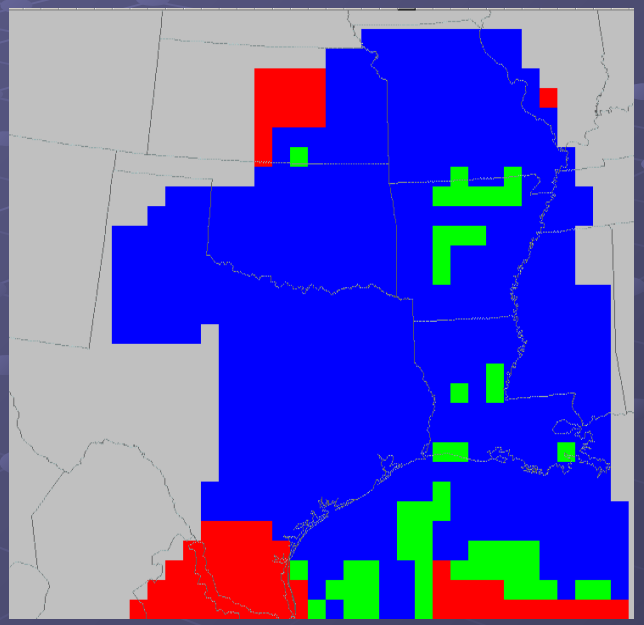
CHI-SQUARE



Hypothesis: Are forecasts related in a meaningful way to corresponding observations?

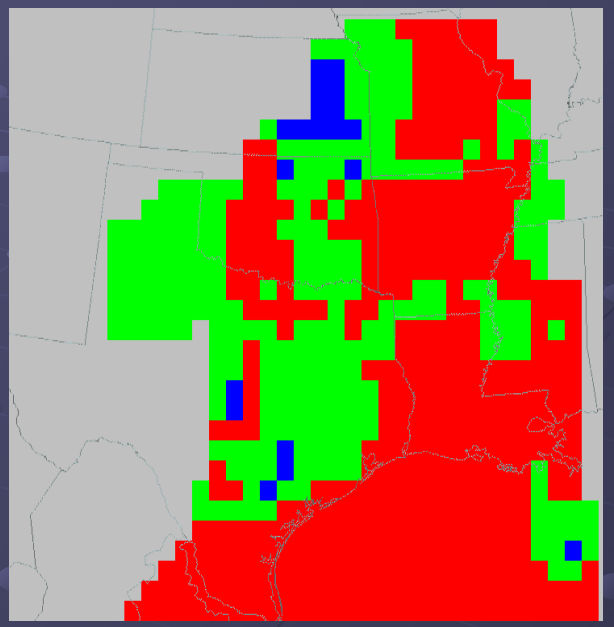
- Yes (p<.05)
- No (p>.05)
- Insufficient Data

HEIDKE SKILL SCORE



- Strong Skill (hss>.5)
- Weak to Moderate Skill (0<hss<.5)
- No Skill (hss< 0)
- Insufficient Data

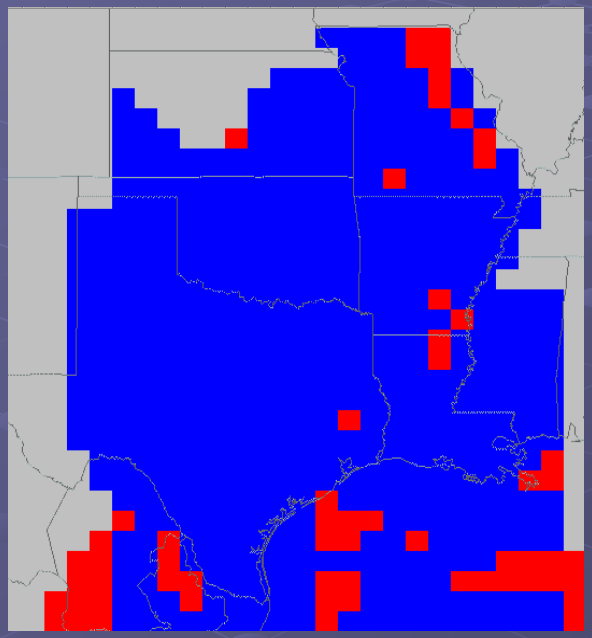
BIAS



- Over-Forecast (bias>1.2)
- No Significant Bias (.8<bias<1.2)
- Under-Forecast (bias< .8)
- Insufficient Data

HWD 24 Hr Forecast

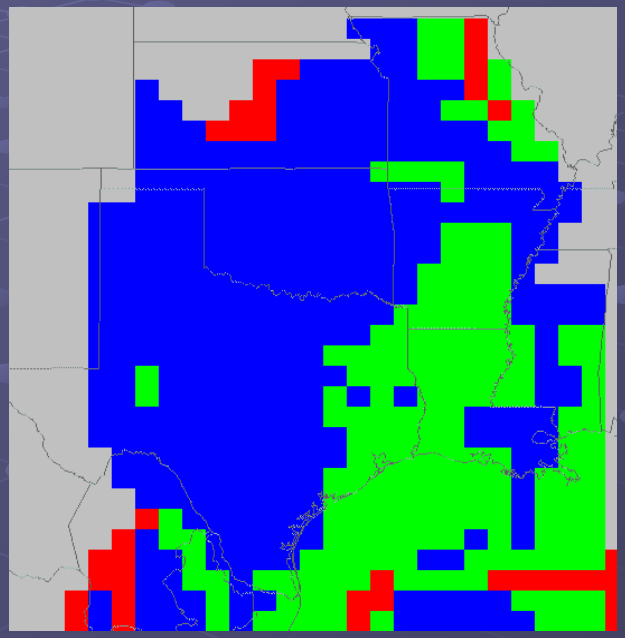
CHI-SQUARE



Hypothesis: Are forecasts related in a meaningful way to corresponding observations?

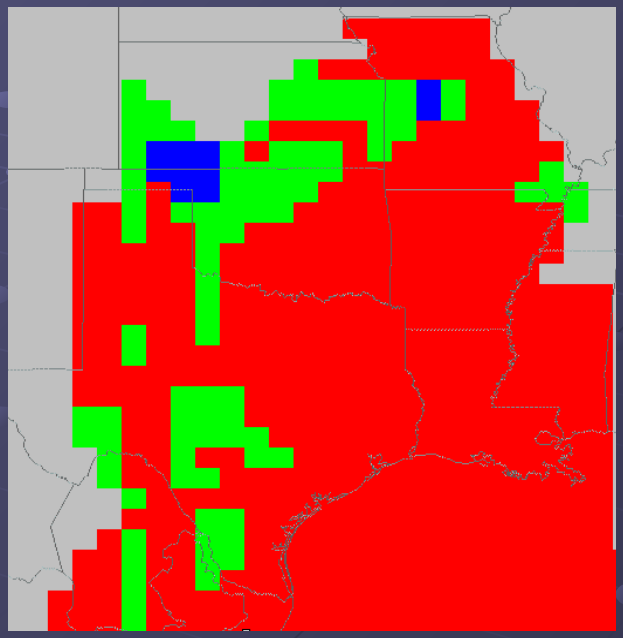
- Yes (p<.05)
- No (p>.05)
- Insufficient Data

HEIDKE SKILL SCORE



- Strong Skill (hss>.5)
- Weak to Moderate Skill (0<hss<.5)
- No Skill (hss< 0)
- Insufficient Data

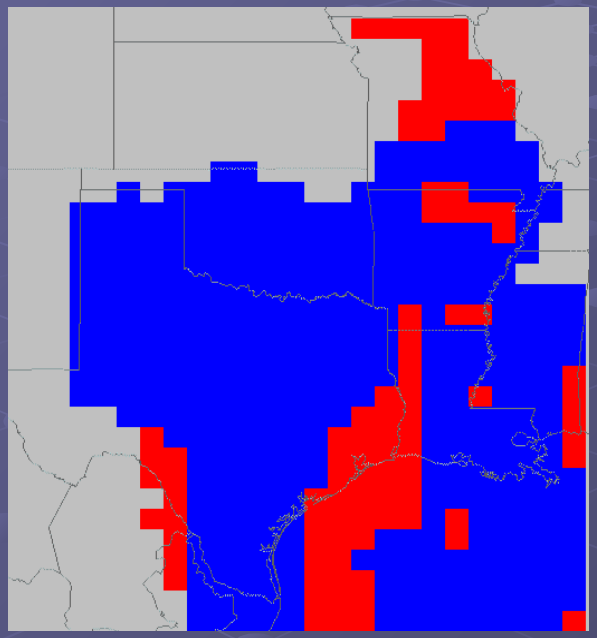
BIAS



- Over-Forecast (bias>1.2)
- No Significant Bias (.8<bias<1.2)
- Under-Forecast (bias< .8)
- Insufficient Data

HWD 48 Hr Forecast

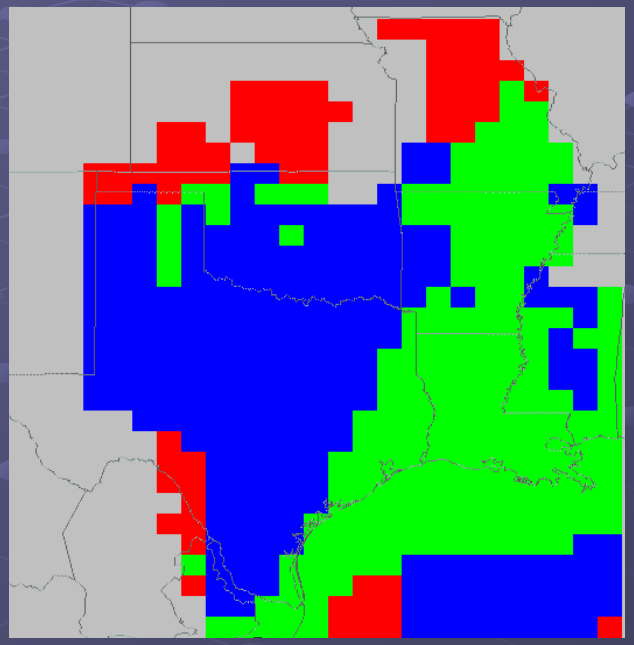
CHI-SQUARE



Hypothesis: Are forecasts related in a meaningful way to corresponding observations?

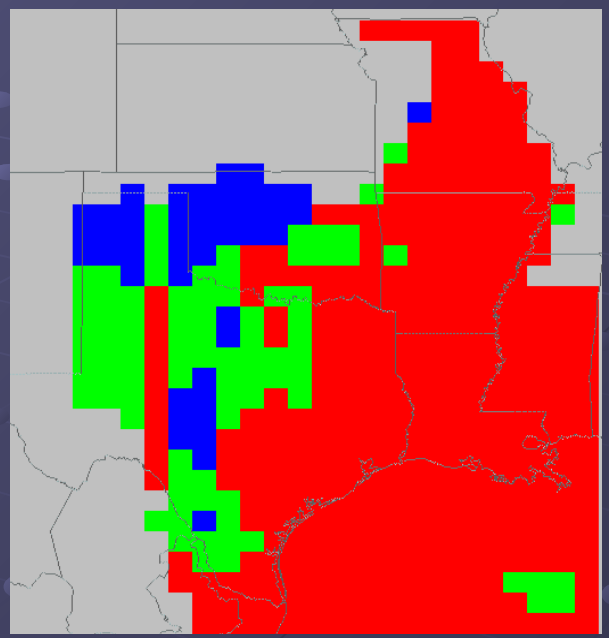
- Yes (p<.05)
- No (p>.05)
- Insufficient Data

HEIDKE SKILL SCORE



- Strong Skill (hss>.5)
- Weak to Moderate Skill (0<hss<.5)
- No Skill (hss< 0)
- Insufficient Data

BIAS



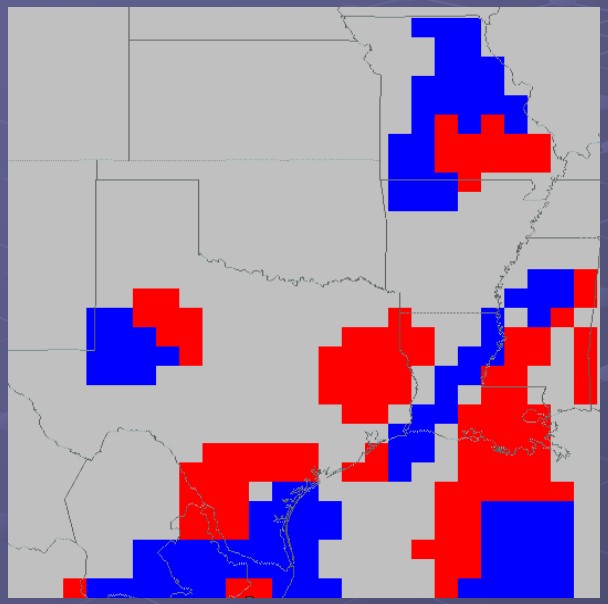
- Over-Forecast (bias>1.2)
- No Significant Bias (.8<bias<1.2)
- Under-Forecast (bias< .8)
- Insufficient Data

Thunderstorm Results

Period: 01-31 Dec 02

TSTMS 12 Hr Forecast

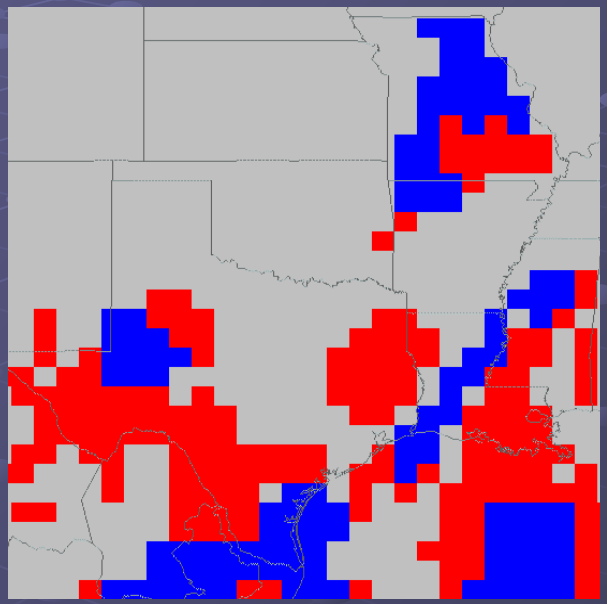
CHI-SQUARE



Hypothesis: Are forecasts related in a meaningful way to corresponding observations?

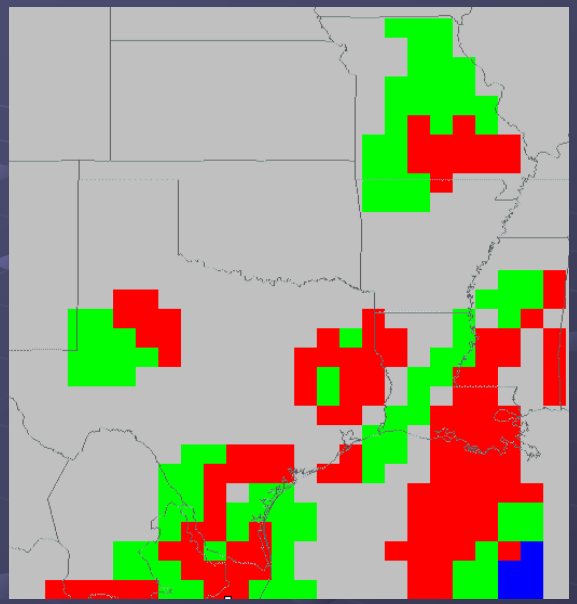
- Yes (p<.05)
- No (p>.05)
- Insufficient Data

HEIDKE SKILL SCORE



- Strong Skill (hss>.5)
- Weak to Moderate Skill (0<hss<.5)
- No Skill (hss< 0)
- Insufficient Data

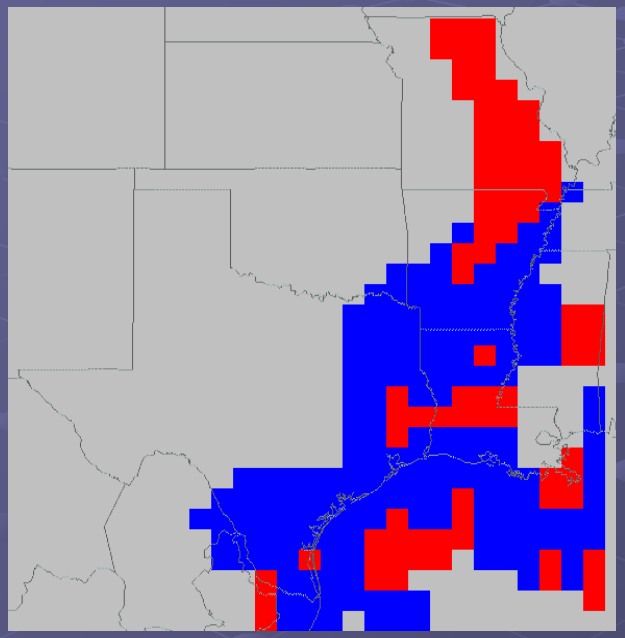
BIAS



- Over-Forecast (bias>1.2)
- No Significant Bias (.8<bias<1.2)
- Under-Forecast (bias< .8)
- Insufficient Data

TSTMS 24 Hr Forecast

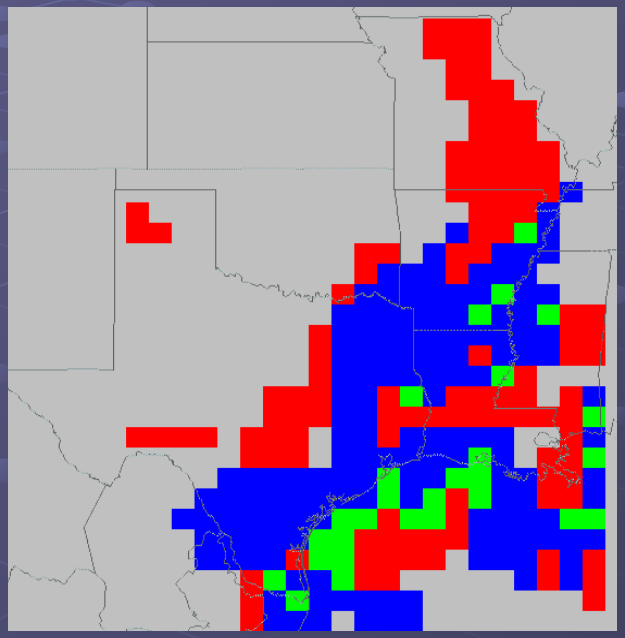
CHI-SQUARE



Hypothesis: Are forecasts related in a meaningful way to corresponding observations?

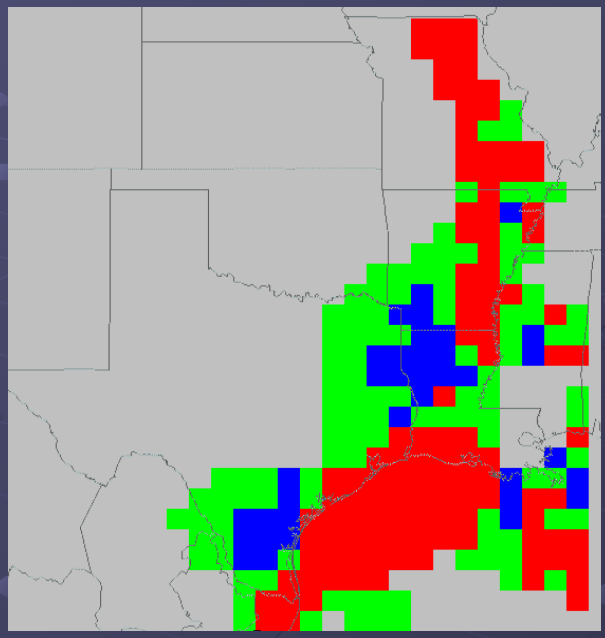
- Yes (p<.05)
- No (p>.05)
- Insufficient Data

HEIDKE SKILL SCORE



- Strong Skill (hss>.5)
- Weak to Moderate Skill (0<hss<.5)
- No Skill (hss< 0)
- Insufficient Data

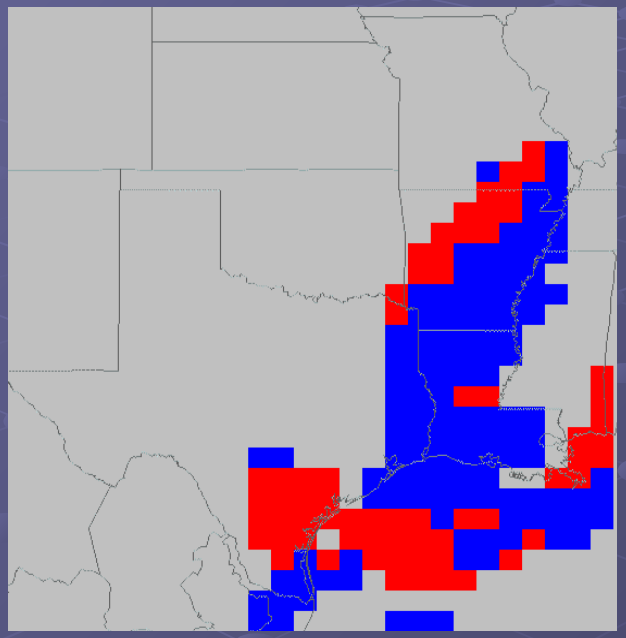
BIAS



- Over-Forecast (bias>1.2)
- No Significant Bias (.8<bias<1.2)
- Under-Forecast (bias< .8)
- Insufficient Data

TSTMS 48 Hr Forecast

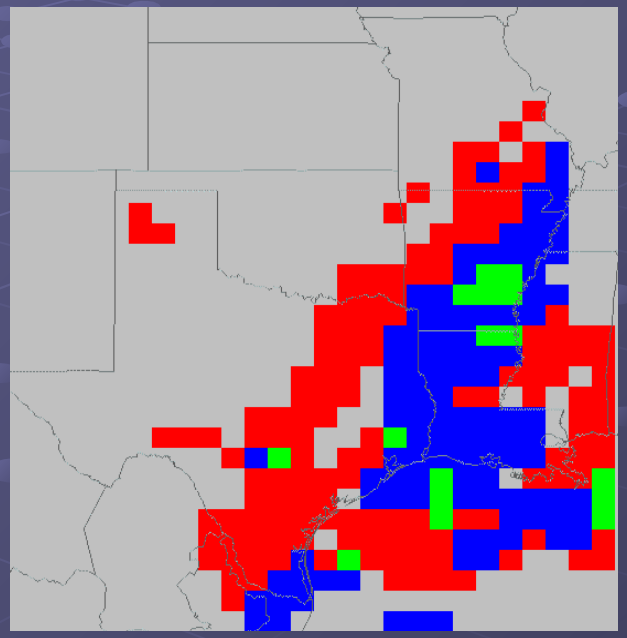
CHI-SQUARE



Hypothesis: Are forecasts related in a meaningful way to corresponding observations?

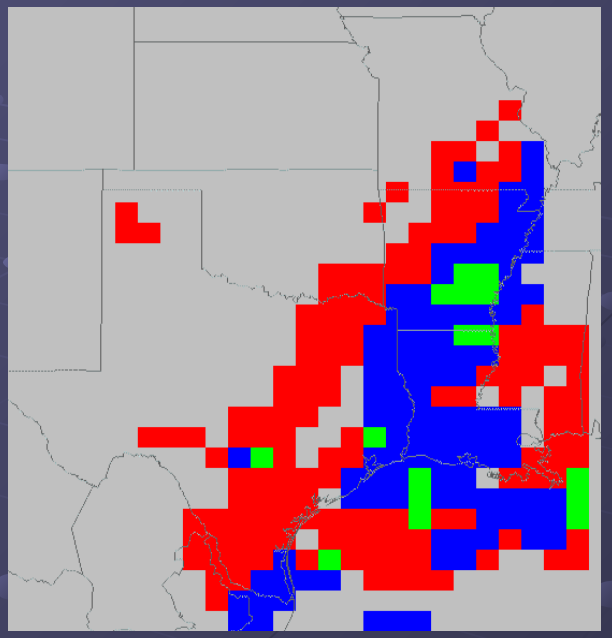
- Yes (p<.05)
- No (p>.05)
- Insufficient Data

HEIDKE SKILL SCORE



- Strong Skill (hss>.5)
- Weak to Moderate Skill (0<hss<.5)
- No Skill (hss< 0)
- Insufficient Data

BIAS



- Over-Forecast (bias>1.2)
- No Significant Bias (.8<bias<1.2)
- Under-Forecast (bias< .8)
- Insufficient Data

Review

- HWD Strong-moderate skill overall
  - Still under forecasting (Trend item)
  - Need to review Climatology as a forecast tool
- TSTMS
  - Hit or Miss this time of year
  - Model trend to move to fast and CWF didn’t adjust until the 24 hr point
  - 24 hr where data good/strong-moderate skill